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POSTAL RATE COMMISSION OFFICE OF THE SECRETARY

# DOCKET NO. R2001-1 USPS-LR-J-70

# **RURAL CARRIER ANALYSIS**

#### **PREFACE**

This library reference contains documentation for the calculation of rural carrier variability ratios, average weekly pieces, and total rural mail count pieces for letter and flats. It provides the same function as USPS-LR-I-152 filed in Docket No. R2000-1. This is a Category 2 library reference that witness Kay is sponsoring as a part of USPS-T-21. Material from this library reference is used in the base year workpapers of witness Meehan (USPS-T-11, WP B).

Note that in preparing documentation, errors were found in the input data for SAS program MEANALL that change the output values, and the resulting rural carrier costs, only slightly. The errors in the input data have been corrected for this library reference, and it is the corrected version that should be used for any subsequent analysis. However, output from the erroneous version was used in witness Meehan's workpapers, and output from that version is also included herein for reference purposes.

#### **RURAL CARRIER ANALYSIS**

This library reference contains documentation for the calculation of rural carrier variability ratios, average weekly pieces, and total rural mail count pieces for letter and flats. These items are used in the development of rural carrier cost.

1. Program Documentation A description of the input data, output data, tasks

performed, and variables for the computer programs. This includes both the formal documentation and an informal document, which contains additional

descriptive detail on the functioning of the programs.

2. Program Listing Copies of the following SAS program with internal

documentation:

MEANALL

3. Output Listing A listing of the output created by the SAS program,

including rural carrier variabilities, average weekly pieces, and total rural mail count pieces for letters and

flats. A listing of the output created by the SAS program MEANALL before errors were corrected is also included. This erroneous version is what appears in USPS-T-11, Workpaper B. Cost

differences using the corrected version are minimal. A discussion of the corrections made to the program

is in the next section.

4. Floppy Disks Containing MEANALL

#### III. Requirements of Computer Analysis Relied Upon

#### 1. A general description of the program that includes:

#### 1. Objectives of the program:

The objective of SAS program MEANALL is to provide input data for the rural carrier cost analysis, as shown in USPS-T-11, Workpaper B. Rural carrier variability ratios, average weekly pieces, and flats and letter volumes are used in rural cost analysis. Rural carrier variability ratios are used to divide total rural carrier costs into variable and non-variable costs, as shown in WS 10.0.1. Average weekly pieces are used to divide variable costs into costs for each rural evaluation item, such as letters delivered, flats delivered, and parcels delivered. This analysis is shown in WS 10.1.1 and 10.2.1. Letter and flat volumes are used in the adjustment of the letter and flat distribution keys, as shown in WS 10.0.3 page 1.

The original version of MEANALL attempted to use data from the prior five years of RMC data. Not only was the data from FY 1997 inadvertently deleted from this analysis, but the data that was thought to be from the FY 1996 Rural Mail Count (RMC) was later found to be from an even earlier count. This earlier RMC is eliminated in the corrected version, and FY 1997 data is included. In addition, the length of the count in weeks is available within the data. This supplied value is used in place of a calculated value. These changes have minimal impact on the results, as most of the routes used in the analysis have more recent evaluations. Only 1,027 out of the 63,950 total routes used in the analysis come from the FY 1997 RMC.

### 2. Processing tasks performed:

BY 2000 rural carrier variability ratios, average weekly pieces, and flats and letter volumes are all calculated from the RMC data set. The data set used in this analysis contains the most recent evaluation for each rural route from the FY 1997 – FY 2000 RMC. This data set contains 64,025 records of individual routes, including volumes counted on the route, and time allotments for each evaluation item that are used to generate the average time to deliver the route. The RMC data set is provided in USPS-LR-J-71.

Rural carrier pay is based on time allowances given for delivering and collecting mail and other factors, such as the number of boxes on the route and the mileage on the route. These allowances are determined during the annual RMC. If a route does not participate in the mail count, then the most recent evaluation for that route determines the rural carrier's pay.

#### a. Letter and flat pieces

MEANALL first does initial set-up that will be used for all three analyses. The program separates time filling out forms 3579 and 3821, time loading vehicle, and time purchasing stamps for the route into their respective fixed and variable portions. Locked pouch delivery and withdrawing mail time allowances are restricted to be no greater than 30 minutes, and parcel post accepted route time is set equal to parcel post accepted office time if the route time is equal to zero. The records are then separated between evaluated routes and other routes.

MEANALL then adds up the number of letter, flat, DPS, and sector segment pieces for all evaluated and for all other routes. These volumes are used in USPS-T-11, Workpaper B, WS 10.0.3 page 1.

#### b. Average weekly pieces

The program calculates the average weekly values for the variables used to determine the time allowances (such as the number of letter pieces delivered) for evaluated (H, J, and K) routes and other (Auxiliary and Mileage) routes.

The mean values of the time allowances are calculated for evaluated routes and for other routes. The average weekly pieces are used in USPS-T-11, Workpaper B, WS 10.1.1 and 10.2.1.

#### c. Variability ratios

Total variable time allowance is calculated as the sum of all time allowances that vary with volume, and total time allowance is calculated as the sum of all time allowances. Variability ratios are computed, for evaluated routes and for other routes, as mean variable time allowance divided by mean total time allowance. The variability ratios are used in USPS-T-11, Workpaper B, WS 10.0.1.

# 3. A listing of the input and output data.

The input data set is FINLALL.

Number of observations: 64,025 Number of variables: 67

The variables in dataset FINLALL are listed below.

Variables describing the route and the route evaluation:

MILES - Number of miles on the route

BOXESR - Number of regular mailboxes on the route
BOXESC - Number of centralized mailboxes on the route
RTTYPE - Route type: H, J, K (Evaluated), or A, M (Other)
CNTLEN - Number of weeks the mail was counted (2 or 4)

YEAR - Fiscal year the evaluation was taken

The following are evaluated time allowances, used to calculate variability ratios:

MILEST - Miles driven on the route
BOXESRT - Number of boxes, regular
BOXESCT - Number of boxes, centralized

NDCBUT - Neighborhood Delivery and Collection Box Units

PARLCKT - Parcel post lockers
POUCHT - Locked pouch delivery
WITHDT - Withdrawing mail

ADDREST - Change of address forms

F3579T - Filling out forms 3579 and 3821

LOADNGT - Loading vehicle time

PERSNLT - Office work not covered and personal time

STAMPST - Purchasing stamps for the route

ALLOWT - Other suitable allowances

DLLETRT - Delivering letters
DLFLATT - Delivering flats
DLPAROT - Delivering parcels

BOXHLDT - Delivering boxholder mail

CODCSOT - C.O.D. and customs due, office time CODCSRT - C.O.D. and customs due, route time

DLREGOT - Delivering registered, certified, etc., office time DLREGRT - Delivering registered, certified, etc., route time

MARKUPT - Markups (undeliverable mail)

STRAPT - Strapping out (putting rubber bands around letters

and flats, keeping them in delivery sequence

MNORDOT - Money orders, office time
MNORDRT - Money orders, route time
COLLFT - Collecting letter size pieces

PPACCOT - Parcel posts accepted, office time
PPACCRT - Parcel posts accepted, route time
COLREGT - Collecting registered, certified, etc.

POSTDUT - Postage dues
RETRCTT - Return receipts
DISMNTT - Dismount time

DPST - Delivery Point Sequence

SECSEGT - Sector Segment

The following variables are counts of the number of each type of item over the duration of the mail count. These variables are used to calculate average weekly pieces and the count of letter and flat pieces.

DSMOUNT - Number of authorized dismounts
DSMFEET - Dismount distance walked (feet)
LETTERS - Number of letters delivered

FLATS - Number of letters delivered
PARCELS - Number of parcels delivered

BOXHOLD - Number of boxholder pieces delivered CODCUST - Number of C.O.D. and customs due pieces

REGCERT - Number of registered, certified, special delivery, etc.

MARKUP - Number of markups (undeliverable mail)
CHGADDR - Number of change of address forms

MONORDR - Number of money orders

LETCOLL - Number of letter size pieces collected PARCACC - Number of parcel posts accepted

REGACC - Number of registered, certified, etc. collected on the

route

POSTDUE - Number of postage dues
PURCHST - Purchase stamp count
Lock pouch stops

RETRCT - Number of return receipts

DPS - Number of delivery point sequence pieces delivered

SECSEG - Number of sector segment pieces delivered

CHGADDR - Change of address forms

F3579 - Filling out forms 3579 and 3821

LOADING - Loading vehicle
PARLOCK - Parcel post lockers

NDCBU - Number of NDCBU boxes

ALLOW - Other suitable allowance count

ACTLHRS - Actual hours

# 4. A listing of the source code:

See attached program documentation. This is the corrected version of program MEANALL.

# B. For all input data:

# 1. Designation of all sources of such data:

Dataset FINLALL is the data from the FY 2000 RMC, taken in September of 1999, and also includes the most recent evaluation for all routes from the FY

1997 through FY 1999 RMC that were not counted in the FY 2000 count. An electronic copy of this data is supplied in USPS-LR-J-71.

# 2. Explanations of any modifications to such data made for use in the program.

Modifications to the data are described in section A.2.

#### C. Definitions of all input and output variables or sets of variables:

The following variables are created in the program and are used to compute variability ratios:

F3579TF - Fixed portion of time allowance spent filling out

forms 3579 and 3821

F3579TV - Variable portion of time allowance spent filling out

forms 3579 and 3821

LOADTF - Fixed portion of time allowance spent loading vehicle

LOADTV - Variable portion of time allowance spent loading

vehicle

STAMPTF - Fixed portion of time allowance spent purchasing

stamps for the route

STAMPTV - Variable portion of time allowance spent purchasing

stamps for the route

FIXED - Total fixed time allowance
VARIABLE - Total variable time allowance
TOTAL - Sum of FIXED and VARIABLE

ROUTE - Route type identifier, equal to either "EVAL' or 'OTHR'

VARRAT - Variability Ratio

#### D. A description of input and output data file organizations:

FINLALL is a flat text file. The location of the variables on the file is shown in the listing for SAS program MEANALL.

#### E. A machine-readable copy of all data bases:

A machine-readable copy of FINLALL, containing all variables used in MEANALL, is provided with USPS-LR-J-71.

F. For all source codes, documentation sufficiently comprehensive and detailed to satisfy generally accepted software documentation standards appropriate to the type of program and to its intended use in the proceedings:

The processing steps used by program MEANALL are described earlier in the document. The program listing for MEANALL also contains numerous comments.

SAS PROGRAM LISTING FOR MEANALL

```
DATA A; INFILE MAIL ; INPUT
      MILES
      BOXESR
      BOXESC
      NDCBU
      PARLOCK
      LETTERS
      FLATS
      PARCELS
      BOXHOLD
      REGCERT
      CODCUST
      CHGADDR
      MARKUP
      F3579
      DPS
      MONORDR
      LETCOLL
      PARCACC
      REGACC
      POSTDUE
      LOADING
      ALLOW
      PURCHST
      RETRCT
      DSMOUNT
      DSMFEET
      POUCHST
      SECSEG
      DLLETRT
      DLFLATT
      DLPAROT
      DLPARRT
      WITHDT
      STRAPT
      LOADNGT
     RETRCTT
      DISMNTT
      BOXHLDT
      CODCSOT
      DLREGOT
      MARKUPT
      ADDREST
     MNORDOT
      COLLFT
      PPACCOT
      STAMPST
     F3579T
     ALLOWT
      POSTDUT
      PERSNLT
     CODCSRT
     DLREGRT
     MNORDRT
     PPACCRT
```

COLREGT MILEST

```
BOXESRT
     BOXESCT
    NDCBUT
     PARLCKT
     POUCHT
     SECSEGT
     DPST
     ACTLHRS
     CNTLEN
     RTTYPE $
*********************************
** NOW WE HAVE THE LATEST EVALUATION FOR EACH ROUTE,
*********************
*** GET COUNT OF LETTERS AND FLATS FOR USE IN
*** MAIL SHAPE ADJUSTMENT
*** DIVIDE PIECES BY NUMBER OF WEEKS IN COUNT
*** SO COUNTS FROM DIFFERENT YEARS GET SAME WEIGHT***;
***************
DATA S; SET A;
LETTERS = LETTERS/CNTLEN;
FLATS = FLATS/CNTLEN;
DPS = DPS/CNTLEN:
SECSEG = SECSEG/CNTLEN;
PROC MEANS DATA=S SUM;
VAR LETTERS FLATS DPS SECSEG;
********************
*** CALCULATE AVERAGE VALUES PER ROUTE
*********************
DATA A; SET A;
IF LETTERS > 0;
 BOXESRL = 0;
 L=0;
 IF ((BOXESR+BOXESC)/MILES) >=12 THEN DO
    BOXESRL = BOXESR;
     BOXESR=0;
 END:
 IF LETTERS > 0 AND ACTLHRS > 0 AND MILES > 0;
 IF POUCHT > 30 THEN POUCHT = 30;
 IF WITHDT > 30 THEN WITHDT = 30;
*********************
* CALCULATE THE AVERAGE VALUE PER WEEK FOR EACH EVALUATION ITEM **;
* TO PUT INTO SPREADSHEETS WS 10.1.1 AND 10.2.1
* DIVIDE PIECES BY NUMBER OF WEEKS IN COUNT TO GET WEEKLY PIECES**;
*********************
LETTERS = LETTERS / CNTLEN;
FLATS = FLATS / CNTLEN;
PARCELS = PARCELS / CNTLEN;
BOXHOLD = BOXHOLD / CNTLEN;
REGCERT = REGCERT / CNTLEN;
CODCUST = CODCUST / CNTLEN;
MARKUP = MARKUP / CNTLEN;
MONORDR = MONORDR / CNTLEN;
DPS = DPS / CNTLEN;
LETCOLL = LETCOLL / CNTLEN;
PARCACC = PARCACC / CNTLEN;
```

```
REGACC = REGACC / CNTLEN;
POSTDUE = POSTDUE / CNTLEN;
LOADING = LOADING / CNTLEN;
RETRCT = RETRCT / CNTLEN;
SECSEG = SECSEG / CNTLEN;
F3579 = F3579 / CNTLEN;
CHGADDR = CHGADDR / CNTLEN;
DSMOUNT = DSMOUNT / CNTLEN;
DSMFEET = DSMFEET / CNTLEN;
  IF RTTYPE='H' OR RTTYPE = 'J' OR RTTYPE = 'K' THEN
  TYPE = "EVAL";
  ELSE TYPE = "OTHR";
PROC SORT DATA=A; BY TYPE;
TITLE1 'THE MEANS OF THE VARIABLES ON THE ROUTES:';
PROC MEANS DATA =A MEAN STD;
BY TYPE ;
VAR MILES BOXESR BOXESCT BOXESRL NDCBUT PARLOCK POUCHT WITHDT
  LETTERS FLATS PARCELS BOXHOLD CODCUST REGCERT MARKUP CHGADDR
  F3579 LOADING PERSNLT MONORDR LETCOLL PARCACC REGACC POSTDUE
  STAMPST RETRCT ALLOWT DSMOUNT DSMFEET DPS SECSEG;
PROC SUMMARY DATA=A;
BY TYPE;
VAR MILES;
OUTPUT OUT=OUT1 N=;
PROC PRINT DATA=OUT1;
DATA A; SET A;
IF LETTERS > 0 AND ACTLHRS > 0 AND MILES > 0;
F3579TF = MIN(F3579T, 12.);
F3579TV = F3579T - F3579TF;
IF LOADNGT > 90 THEN LOADNGT = 90;
LOADTF = LOADNGT * .5;
LOADTV = LOADNGT * .5;
STAMPTF = 0;
STAMPTV = 0;
IF ((BOXESR+BOXESC)/MILES)>12 THEN STAMPTV=STAMPST; ELSE STAMPTF=30;
IF POUCHT > 30 THEN POUCHT = 30;
IF WITHDT > 30 THEN WITHDT = 30;
IF PPACCRT = 0 THEN PPACCRT = PPACCOT;
FIXED = MILEST + BOXESRT + BOXESCT + NDCBUT + PARLCKT + POUCHT
     + WITHDT + ADDREST + F3579TF + LOADTF + PERSNLT + STAMPTF
     +ALLOWT + DISMNTT;
VARIABLE = DLLETRT + DLFLATT + DLPAROT + BOXHLDT + CODCSOT + CODCSRT
     + DLREGOT + DLREGRT + MARKUPT + F3579TV + STRAPT + LOADTV
     + MNORDOT + MNORDRT + COLLFT + PPACCOT + PPACCRT + COLREGT
     + POSTDUT + STAMPTV + RETRCTT + DPST + SECSEGT;
TOTAL = FIXED + VARIABLE:
```

```
RATIO = VARIABLE/TOTAL;

IF RTTYPE = 'H' OR RTTYPE = 'J' OR RTTYPE = 'K' THEN ROUTE = 'EVAL';

IF RTTYPE = 'A' OR RTTYPE = 'M' THEN ROUTE = 'OTHR';

PROC SORT DATA=A; BY ROUTE;

PROC MEANS DATA=A NOPRINT;

BY ROUTE;

VAR VARIABLE TOTAL;

OUTPUT OUT=VAR MEAN=;

DATA VAR; SET VAR;

VARRAT = VARIABLE/TOTAL;

PROC PRINT DATA=VAR;

TITLE 'RATIO OF VARIABLE TO TOTAL FOR EVAL/OTHER';

*;
```

# SAS OUTPUT FOR PROGRAM MEANALL

The MEANS Procedure

Sum	111111111111	221711792	310543445	246542578	22845524.75	
Variable		LETTERS	FLATS	DPS	SECSEG	: : : : : : : : : : : : : : : : : : : :

Variable 	Mean	Std Dev
MILES	50.4716366	9.702951
BOXESR	.189960	17.700880
BOXESCT	6351	.466871
BOXESRL	438524	42.305010
NDCBUT	2.8988424	9.0326492
PARLOCK	.85772	.945545
POUCHT	.389666	.396818
WITHDT	25.0392203	.145236
LETTERS	8.919	
FLATS		796.5
PARCELS	49298	6.985
BOXHOLD	7	100
CODCUST	.360328	.690959
REGCERT	.352611	88
MARKUP	166	90.4417823
CHGADDR	.715802	.487781
F3579	63	2.5238257
LOADING	.150758	17.8469868
PERSNLT	0.00000.0	0
MONORDR	0.2887719	.92881
LETCOLL	9.	.459783
PARCACC	.143779	1640
REGACC	.679910	.271400
POSTDUE		3.2668069
STAMPST	.000000	0
RETRCT	.081683	14639
ALLOWT	594	0.225161
DSMOUNT	0.975915	
DSMFEET	71.7	124.9
DPS	218.7	842.
SECSEG	344.5463579	1130.74

Variable	Mean	Std Dev
MILES	24.4976352	13.6132676
BOXESR	105.9796548	114.3460304
BOXESCT	59,2130529	103.3467970
BOXESRL	91.3683850	131.8683084
NDCBUT	2.7361984	7.3910401
PARLOCK	3.3730712	9.4669080
POUCHT	0.1474454	2.0981243
WITHDT	24.3730712	11.7115846
LETTERS	2119.64	1361.32
FLATS	2510.83	1279.96
PARCELS	113,2014516	62.2645919
BOXHOLD	651,4805978	510,7588220
CODCUST	0.2083381	0.6525371

The MEANS Procedure

----- TYPE=OTHR ----

Variable	Mean	Std Dev
REGCERT	9,1996514	8.9531719
MARKUP	77.5857527	66.8751684
CHGADDR	2.5540062	2,9901694
F3579	2.6572180	2.2687074
LOADING	37.4805121	15.8489244
PERSNLT	30.000000	0
MONORDR	0.2172248	3.0751205
LETCOLL	488.8804149	381.2492895
PARCACC	1.8116928	6.8491341
REGACC	0.4002457	3,4803403
POSTDUE	1.1165562	2.0683019
STAMPST	20.000000	0
RETRCT	0.0495485	0.7159346
ALLOWT	30.6157275	34,6909165
DSMOUNT	28.4381929	72.0383466
DSMFEET	2728.69	7517.86
DPS	1514.81	2212.06
SECSEG	434.5722083	961.7108970

ROUTES
THE
NO
VARIABLES
THE
O.F.
MEANS
THE

11:57 Tuesday, August 28, 2001

MILES	55201
_FREQ_	55201
TYPE	00
TYPE	EVAL
sqo	7 7

Page 20

August 28, 2001	VARRAT	0.48154 0.46771
11:57 Tuesday, A	TOTAL	3122.64 1646.09
11:	VARIABLE	1503.68 769.90
EVAL/OTHER	FREQ_	55201 8749
AL FOR EVA	_TYPE_	00
LE TO TOT	ROUTE	EVAL OTHR
RATIO OF VARIABLE TO TOTAL FOR 1	sqo	2 2

7

SAS OUTPUT FOR PROGRAM MEANALL
BEFORE CORRECTION OF ERRORS
(INPUTS FOR USPS-T-11, WORKPAPER B)

The MEANS Procedure

Sun	793583483	1109739430	886730171	83911209.00
Variable	LETTERS	FLATS	DPS	SECSEG

The SAS System

---- TYPE=EVAL -----

The MEANS Procedure

Variable	Mean	Std Dev
MILES	0.442823	9.627671
BOXESR	.500018	18.098149
BOXESCT	6.6920	136.4305194
BOXESRL	.053545	42.696914
NDCBUT	.915001	.160856
PARLOCK	.871947	.954911
POUCHT	.384658	375202
WITHDT	42184	.142568
LETTERS	735.7	030,1
FLATS	240.0	832.8
PARCELS	13592	.616532
BOXHOLD	410.5	.319583
CODCUST	67737	.709331
REGCERT	.297319	.664745
MARKUP	3.952403	$\overline{}$
CHGADDR	.747696	.553379
F3579	.794136	.582367
LOADING	.441949	.797795
PERSNLT	0.00000.0	0
MONORDR	.287166	'n
LETCOLL	005.5	.487803
PARCACC	.135268	41283
REGACC	79830	.222138
POSTDUE	.106548	.327357
STAMPST	.926963	.296918
RETRCT	4748	.137487
ALLOWT		.265363
MOOM	1.074942	7.200507
DSMFEET	978.5	308.1
DPS	167.8	
SECSEG	365.7648757	

Variable	Mean	Std Dev
MILES	24.5773411	13.4597844
BOXESR	106.4018229	115,7015591
BOXESCT	59.8229999	104.7093974
BOXESRL	94.1225385	134.2071589
NDCBUT	2.7750647	7.4922073
PARLOCK	3,3618769	9.5387444
POUCHT	0.1417801	2.0576148
WITHDT	24.4064364	11.6847900
LETTERS	2352.93	1386.56
FLATS	2936.17	1924.08
PARCELS	132.8005795	96.9076813
BOXHOLD	769.2748678	721.2975252
CODCUST	0.2480590	0.7077156
: !		

---- TYPE=OTHR -----

The MEANS Procedure

Variable	Mean	Std Dev
#00000 #00000		
NEGCEN!	7/09788.01	12.5596261
MARKUP	92.2737144	93.3420604
CHGADDR	2.9908012	3.7741467
F3579	3.1174750	447
LOADING	45.0602003	.85
PERSNLT	30,0000000	0
MONORDR	0.2475526	3.5871773
LETCOLL	576.5255711	.386027
PARCACC	2.0501857	7.8649673
REGACC	0.4839372	4.6628406
POSTDUE	1.3151795	3,1591032
STAMPST	19.7814223	•
RETRCT	0.0580061	1,0597963
ALLOWT	30.2319962	34.5690845
DSMOUNT	33.4747103	
DSMFEET	3198.44	9100.46
DPS	1818.01	3191,85
SECSEG	656.2928997	723.

10:34 Frida	MILES	54048 8887
10:3	FREQ_	54048 8887
TES:	_TYPE_	00
тны кои	TYPE	EVAL OTHR
KIABLES ON THE KOUTES:	sqo	7 7

10:34 Friday, March 23, 2001	VARRAT	0.48178 0.47027
10:34 Friday,	TOTAL	3126.79 1667.06
	VARIABLE	1506.44 783.97
RATIO OF VARIABLE TO TOTAL FOR EVAL/OTHER	FREQ	54048 8887
	_TYPE_	00
	ROUTE	EVAL OTHR
	Obs	7 7